ASOS MODIFICATION NOTE 9 (for Electronics Technicians)
Engineering Division
W/OSO321:BGM

SUBJECT	:	Temperature/Dewpoint Electronics Enclosure and Aspirator Assembly Replacement
PURPOSE	:	To improve the accuracy of the ASOS hygrothermometer
EQUIPMENT AFFECTED:		ASOS
PARTS REQUIRED	:	Electronics enclosure Temperature/dewpoint aspirator assembly Tie wraps, qty 3
MOD PROCUREMENT	:	The above parts will be provided by the contractor, AAI Systems Management, Inc., as ASOS Field Modification Kit (FMK) #021.
SPECIAL TOOLS REQUIRED	:	None
TIME REQUIRED	:	2 hours
EFFECT ON OTHER INSTRUCTIONS	:	None
CERTIFICATION STATEMENT	:	This modification is authorized by Engineering Change Proposal E92SM05F004. It has been successfully tested by the contractor for operational integrity. Testing has been completed at three Southern Region sites, three Central Region sites, Atlantic City, New Jersey, and Sterling, Virginia.

GENERAL

This modification note provides a procedure to remove and replace the HO83 or 1088 hygrothermometer electronics enclosure and temperature/dewpoint aspirator assembly. A recent update to the temperature/dewpoint calibration resistors and processor board requires a change be made to all fielded ASOS HO83 and 1088 hygrothermometer systems.

PROCEDURE:

Follow the removal and installation instructions for FMK #021.

READ THE PROCEDURE BEFORE PROCEEDING!!!

REPORTING MODIFICATION

Target date for completing this modification is 90 days after receipt of parts. Report completed modification on WS Form H-28, Engineering Progress Report, according to instructions in EHB-4, part 2, using reporting code ASOS.

Make appropriate entries in the SYSLOG using the Maintenance Action keys, Field Modification keys, and comment fields.

J. Michael St. Clair
Chief, Engineering Division

Attachment

W/OSO321:BGMcCormick:rhz:8/20/93:8/24/93:sol:8/27/93:disk HB-11-a
"asosmod9.h11" WP5.1 Speller

SID _____ FMK #021

ASOS FIELD MOD KIT (FMK)

CONTRACT 50-SANW-1-00050
UPON COMPLETION OF MOD, COMPLETE LOWER SECTION
OF THIS SHEET AND RETURN TO:

AAI SYSTEMS MANAGEMENT INC.
11101 GILROY ROAD
HUNT VALLEY ND, 21030-1108

NOTE: MAKE A COPY FOR ON-SITE RECORDS

Date Prepared: 03/09/93 ECP: E92SM05F004

Part Numbers Affected 62828-90109

Description of Change:

There was a recent update to the temperature/dew point calibration resistors and processor board in the electronics enclosure and aspirator assembly. This change is required for all fielded HO83 and 1088 systems.

Remove and replace the temperature/dew point electronics enclosure and aspirator assembly. Utilize Installation Procedure A09, Section 2.7 (attached) for removal and installation reference. Document the enclosure serial number (removed and installed) below.

Parts Included: Electronics Enclosure, Temp/Dew Point Aspirator Assy, TyWrap (Qty. 3)

QA Concurrence with FMK: _____
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Date Modification complete _____

Part Removed Serial # _____

Part Installed Serial # _____

Person Completing Modification: _____
Were FMK instructions clear/concise: Y / N (circle)
Was FMK complete (parts, drawings, etc.): Y / N (circle)
If **NO**, please comment (use back of form if needed):

TEMPERATURE/DEWPOINT SWAPOUT PROCEDURE

WARNING

Death or severe injury may result if power is not removed from sensor prior to maintenance activities. Ensure that circuit breaker supplying power to sensor is set to OFF (right) position.

REMOVAL

1. Inside DCP cabinet, set circuit breaker on temperature/dewpoint sensor power control module to off (right) position.

2. Remove ground wire and lug from transmitter box.

3. Using large flat-tipped screwdriver, open temperature/dewpoint transmitter access door.

4. Disconnect AC power input wires from terminals TB1-1, TB1-2, and TB1-3 inside transmitter.

5. Using clockwise rotation, disconnect two fiber optic cables from underneath fiber optic module. Install protective plastic covers over fiber optic cable connectors.

6. Using large adjustable wrench, disconnect flexible conduit from transmitter.

7. Using 1/2-inch wrench, loosen bolts securing transmitter to sensor pad column support post.

8. With aspirator still connected to transmitter, remove temperature/ dewpoint sensor from column.

9. Disassemble transmitter unit and aspirator from the angle irons and package in the shipping container provided with replacement unit. PLEASE RETURN THE ENTIRE UNIT. Retain the solar shield for use on the replacement unit. RETAIN THE HARDWARE AND ANGLE IRONS TO INSTALL REPLACEMENT UNIT. Replacement unit does not include new angle irons or hardware. Affix shipping label (provided) to the outside of the box and ship.

INSTALLATION

1. Remove aspirator and transmitter from the shipping container.

2. Locate bracket assembly (previously removed from old unit) and using 5/16-inch nut driver and No. 1 Phillips, remove the locknuts securing the medium and small angle irons to the bracket assembly.

3. Connect mounting bracket stamped with an **O** to hinged side of transmitter. Install two 1/2-inch standoffs securing bracket. Do not tighten standoffs.

4. Connect mounting bracket stamped with an **X** to the other side (non-hinged) of the transmitter. Install two 1/2-inch standoffs securing bracket. Do not tighten standoffs.

5. Position aspirator on mounting brackets so that cable is toward transmitter. Install four 3/8-inch locknuts securing aspirator on mounting brackets. Do not tighten locknuts.

6. Using No.1 Phillips screwdriver and 5/16 nut driver, install four screws and locknuts securing small angle irons to top and bottom of support brackets. Do not tighten locknuts.

7. Using 5/16-inch nut driver and No. 1 Phillips screwdriver, install four screws and locknuts securing medium angle irons to each side of bracket assembly. Tighten locknuts securing medium and small angle irons to bracket assembly.

8. Using 3/8-inch nut driver, tighten four locknuts securing mounting bracket to aspirator.

9. Using 1/2-inch nut driver, tighten four standoffs securing mounting bracket to transmitter.

10. Position the solar shield over transmitter with longest side facing aspirator (fig 5.2.1).

11. Using No. 2 Phillips screwdriver, install four screws, lockwashers, and flat washers securing solar shield to standoffs on transmitter.

12. Using cable tie wraps, secure aspirator cable to support arm assembly as shown on figure 5.2.1. Be sure to leave service loop to allow removal of dewpoint sensor fan without cutting tywraps.

13. Connect connector P1 to connector J1 on transmitter.

14. Inside DCP cabinet, ensure that circuit breaker on temperature/dewpoint sensor power control module is set to off (right) position.

NOTE

Sensor must be mounted so that aspirator assembly is toward the south, over either grass or bare earth (whichever is the norm for the area; no gravel)

15. Slide transmitter on sensor pad mounting pole and orient sensor so that aspirator faces south (transmitter access door opens north). Using 1/2-inch wrench, install three

mounting bolts securing sensor to mounting pole. Tighten nuts against mounting column to lock mounting bolts in position.

16. Install grounding lug to transmitter. Install ground wire to lug.

17. Open transmitter access door.

18. Carefully slide AC power and fiber optic cables through hole in bottom of transmitter. Using large adjustable wrench, secure flexible conduit to transmitter.

19. Connect AC power wiring to transmitter terminal board TB1 according to the following connection chart:

WIRE COLOR	TERMINAL	FUNCTION
Black	TB1-1	110 VAC
White	TB1-2	Neutral
Green	TB1-3	Chassis ground

20. Connect **RX** connector of fiber optic cable to **RX** connector underneath fiber optic module in transmitter (**RX** connector on module is nearest DB-9 electrical connector). Connect **TX** connector on fiber optic cable to remaining connector on fiber optic module.

21. At transmitter, set the following controls to the indicated positions:

CONTROL	POSITION
Power on/off switch	On (up)
Mode switch	OPR
Autobalance dial	000

22. Inside DCP equipment cabinet, set circuit breaker on temperature/dewpoint sensor power control module to on (left) position.

23. At temperature/dewpoint sensor, set power switch to on (up) position. Ensure that display on transmitter is illuminated and that fan in aspirator is operating (fan makes audible sound). If the correct indications are not observed, remove power from sensor immediately and troubleshoot sensor using procedures provided in chapter 5, section V of the ASOS Site Technical Manual.

24. Using procedures provided in the ASOS Site Technical Manual, paragraph 5.5.2.5, check temperature/dewpoint sensor DC power supplies.

25. Using procedures provided in the ASOS Site Technical Manual, paragraph 5.5.2.2, inspect and clean aspirator air passage and mirror.

26. Using procedures provided in the ASOS Site Technical Manual, paragraph 5.5.2.3, perform the optical loop adjustment.

27. Using procedures provided in the ASOS Site Technical Manual, paragraph 5.5.2.6, calibrate temperature/dewpoint sensor.

28. Using procedures provided in the ASOS Site Technical Manual, table 5.5.5, perform fan fail monitoring circuit adjustment.

29. At transmitter, close the access door.

30. At the OID, using procedures provided in the ASOS Site Technical Manual, paragraph 1.3.10, configure the system to accept sensor inputs.

31. Using procedures provided in chapter 1 of the ASOS Site Technical Manual, perform diagnostic testing of the sensor.

32. After allowing sensor to stabilize its operation, observe 1-minute display to verify sensor operation and data reporting.

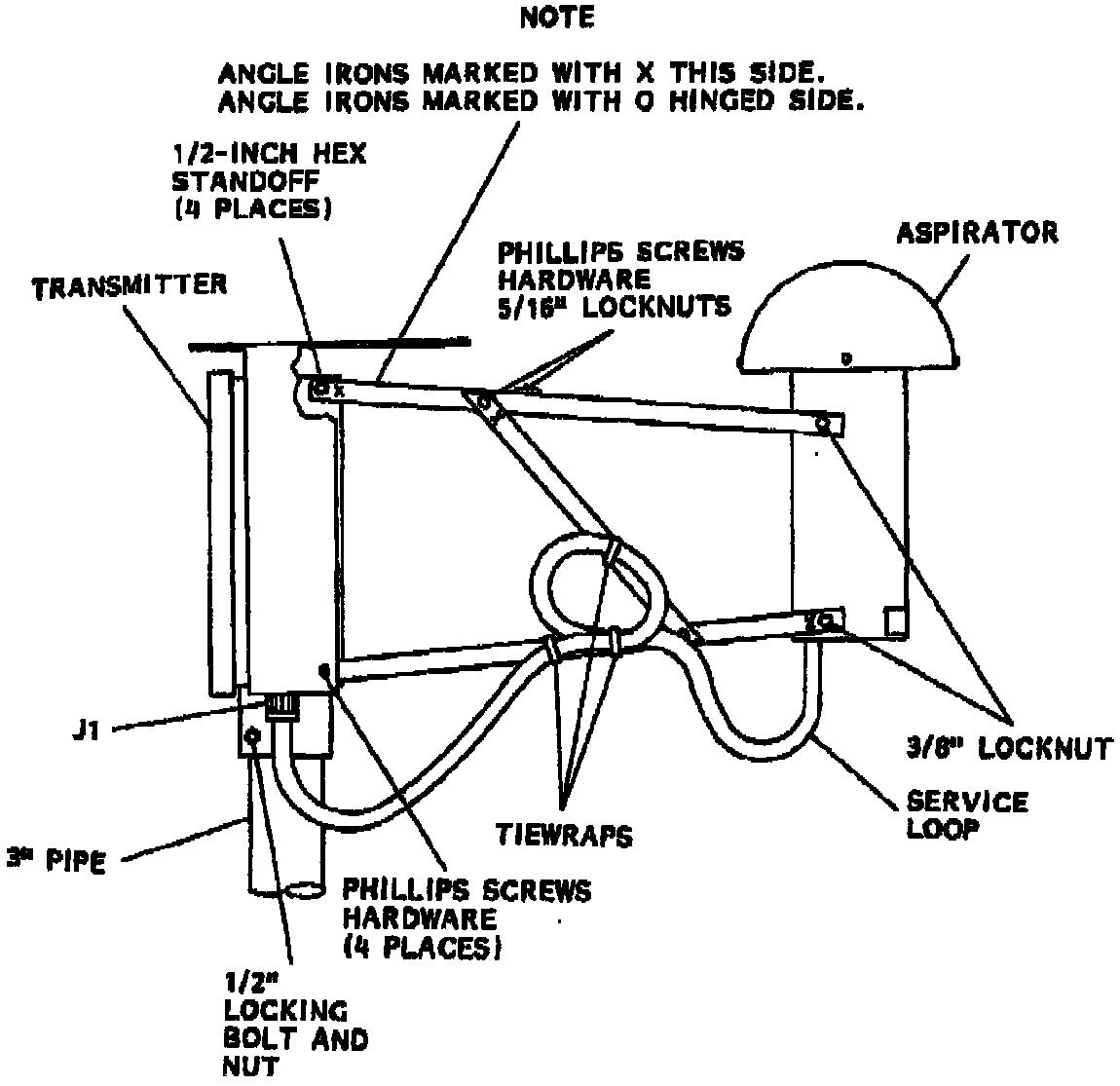

Figure 5.2.1. Temperature/Dewpoint Sensor Installation Diagram